Chapter XIV

SUPPLY AND MAINTENANCE

Prior to 1955, the responsibility for supply and maintenance of Army aircraft was split between the Department of the Army and the Department of the Air Force. The Army was responsible for field maintenance of aircraft, computation of requirements, and funding for spare parts. The Air Force was responsible for depot storage of aircraft and parts, and for major overhaul maintenance. Because of this dual responsibility in a single logistics area, the Army encountered several major problems which retarded proper support for Army aircraft. The lack of adequate and timely stock status information required the Department of the Army to employ an excessive administrative lead time in computing its anticipated requirements for replenishment procurement. The nonavailability of inventory status reports made it impossible to integrate properly the stocks on hand with requirements for provisioning spare parts support for new aircraft coming into the system.

Another problem was the lack of issue experience and clear delineation between recurring and nonrecurring issues that prohibited proper budgeting for procurement of aircraft parts returned to Air Force depots from Army installations for rebuild. The excessive administrative lead time between the critical supply situations at the depots and the reporting of such situations to the Army agency competent to take corrective supply action resulted in additional difficulties. There was no worldwide inventory report including quantities of available Army supplies in overseas depots due to the lack of information from Air Force reports.

The Army maintenance concepts contained three echelons of maintenance—organizational, field, and depot—located separately, while the Air Force, although recognizing these three echelons, merged organizational and field maintenance at base shops. This dissimilarity in the two maintenance systems caused difficulty in computing allowable lots of parts, technical order compliance requirements for deport maintenance of parts, and funding for spare parts consumption. The division of responsibility for aircraft maintenance and budgeting made it impossible to develop reliable operational and cost accounts on the effectiveness and efficiency of Army aircraft maintenance.[1]

Transfer of Depot Responsibility

During 1954, the Army had come to the conclusion that adequate logistical support of its aviation could not be attained under the existing alignment of responsibilities. The Air Force, which had earlier opposed the idea, exhibited willingness to go along with a transfer of depot functions. The Transportation Corps immediately began planning for the assumption by the Army of the depot support mission. The initial Transportation Corps plan, prepared by Transportation Corps Army Aviation Field Service Office in September 1954, laid down the broad outlines for the Army assumption of depot support responsibilities over a two year period, beginning 1 July 1955.

On 14 March 1955, the Army and the Air Force signed a memorandum of agreement laying down the general principles for the transfer of depot support functions. By the terms of the agreement, the Army would store and issue Army aircraft and all common and peculiar spares and spare parts to include airframes, engines, instruments, accessories, communications and electronics equipment, ground handling equipment, overhaul and maintenance tools, paint, hardware, raw materials, and other supplies and equipment used in direct support of Army aircraft.

The transfer of storage, issue, and depot maintenance responsibilities would begin on 1 July 1955 and be accomplished progressively according to a schedule devised by a joint working committee. Army equities of serviceable items in Air Force depot stocks were to be exhausted by normal attrition, physical transfer from Air Force depots to Army depots, or transfer to the Air Force of those items excess to Army requirements. Stocks purchased by the Air Force for the depot maintenance of Army aircraft and allied equipment would be turned over to the Army. The Air Force would continue to process overhaul reparable items pending the date of transfer of this responsibility. And it would continue to budget for the support of depot supply and maintenance of Army air items for FY 1957, with the Army assuming responsibility in FY 1958.[2]

In May 1955, a Department of Defense decision suspended action on the transfer of the depot support functions. Planning by both services was temporarily suspended pending the submission and evaluation of the total recommended adjustments between the departments in the materiel field. On 26 October, Assistant Secretary of Defense Thomas P. Pike approved the transfer in principle and the general plan for effecting it, as presented by the Chief of Transportation. The Department of Defense approval of the plan, it was made clear, would not preclude later reexamination and changes dictated by fund readjustments and changes in construction requirements as implementation proceeded. The Army was not to create any depot facilities, either in CONUS or overseas, where adequate facilities existed. All CONUS maintenance would be performed by contract or by cross servicing with the Air Force or the Navy. On 26 November, the Assistant Secretary of the Army requested a periodic progress statement on the status of the assumption of the depot functions. The Deputy Chief of Staff for Logistics, Department of the

Army, formally assigned the responsibility for Army aviation depot support to the Chief of Transportation on 13 December.[3]

Army Aviation Depot Plan

Provisions of the Plan

As soon as the depot responsibility was assigned to the Chief of Transportation, work began on updating and revising the Army implementation plan. A revised Army Aviation Depot Plan was completed on 15 January 1956. It was necessary to make changes in the time phasing of the transfer of functions and in resource requirements. As a result of a restudy of the depot sites, the Transportation Corps decided to have four, rather than three, Transportation Sections located at depots. Adjustments also had to be made in the plan as a result of the restrictions imposed on depot maintenance by the Department of Defense. Requests for additional construction funds were turned down, and the strength of depot support battalions, planned for overseas service, was reduced. The Deputy Chief of Staff for Logistics, Department of the Army, approved the revised Army Aviation Depot Plan on 30 March.

The supply system developed in the plan was based on normal Army supply procedures, with centralized accountability maintained at the Transportation Supply and Maintenance Command (TSMC) and with stocks held at Transportation Sections of New Cumberland General Depot, Pennsylvania; Atlanta General Depot, Georgia; Sharpe General Depot, California; and Fort Worth General Depot, Texas. The supplies currently stocked at fourteen Air Force depots would be used for supply actions to reduce levels by attrition. Receipts from procurement and returns from overhaul would be placed in Army depots beginning 1 April 1956. The Transportation Corps anticipated supplies in the Air Force depots would be negligible by 1 July 1958.

The Department of the Air Force would continue to budget through FY 1957 for depot maintenance. Major repair and overhaul of aircraft components, except for limited capability prior to 1 July 1957, would be performed by contract or cross-servicing agreements entered into by TSMC. The maintenance facilities established at the depots would enable the Transportation Corps to perform the following functions: fourth echelon maintenance, beyond the capability of field maintenance centers, and contingency maintenance; technical order compliance on reparables and serviceable stock; area support of crash damaged aircraft; and minor unscheduled maintenance by appropriate contracts.

Overseas, supplies would be placed in Army Supply Centers, with requisitions passing through normal Army supply channels at a date to be determined by the theater commanders. Maintenance facilities overseas were to be established in FY 1956, with TD personnel, using available tools and equipment, until replaced by TOE units when they became available.

Implementation of the plan would proceed on a phased basis, beginning on 1 April 1956, with the diversion of supplies under procurement to Army depots until independence from the Air Force depot system was virtually achieved by 30 June 1958. During the third and final year, efforts would be made toward completing construction, obtaining final personnel

allocations, cleaning up residual Army assets in Air Force depots, and attaining a full area maintenance support capability at the Army depot shops.[4]

Army Regulation 700-210, 14 August 1956, described the phased transition of depot support for Army aircraft from the Air Force to the Army. On 17 September, CONARC requested information from the Department of the Army for planning and budgetary purposes. The Department informed CONARC that it would continue the liberal aircraft assembly exchange policy which existed for support of Army aircraft. The Army Aviation Depot Plan contemplated absorbing from the existing CONUS army field maintenance shops that portion of fourth echelon requirements above the capability of the Army shops. No additional funds, personnel spaces, tools, and equipment or facilities would be required. Depot support would be accomplished by cross-servicing agreement, contractual services, and depot facilities. The specific target date for the transfer of responsibility for the depot support of Army aircraft was 1 April 1957, but the program was phased in as requirements existed.[5]

Implementation of the Plan

The air materiel capabilities of the Army depots had to be developed from scratch. Warehouse and storage space was acquired at the four depots and new procurement and excess supplies from the CONUS army areas were brought in as initial stock. Arrangements were made for construction during FY 1957 and FY 1958 of area support fourth echelon shops, including hangars, runways, and related facilities.

Although the timing of the changeover in supply support proceeded according to plan, the expected improvements in the accuracy and responsiveness of the support did not immediately materialize. Recovery from the expected slow down which resulted from transition from the Air Force to the Army supply system was slow. Increasing workloads, limitations in resources and manpower, excessive and improper requisitioning, difficulties in item identification, and other problems necessitated concentration of overcoming backlogs and on meeting current needs.

The rapid growth of Army aviation had been one of the basic causes of the problems which developed. The original 1954 plan was based on a worldwide fixed and rotary wing aircraft population of approximately 3,500. By the end of 1957, this number had increased to approximately 4,500, and more increases were certain in the years to come. The number of air support spare parts to be managed was originally estimated at 36,000, but by the end of 1957 had reached nearly 70,000, with 100,000 expected in 1959. Original plans were based on receiving requisitions for 14,000 air line items per month, while rate of receipt had reached 22,000 per month in 1957. The estimated workload was expected to increase to 40,000 during 1958. The plan contemplated that approximately 1,000 air line items per month would be purchased by TSMC. During 1957, the figure was closer to 3,000 per month.[6]

The Deputy Chief of Staff for Logistics directed in August 1957 a time-phased program to improve the Transportation Corps supply effectiveness. Intended to correct both short and long range problems, the program had several major objectives. To reduce the need for time-consuming procurement actions on requisitions, the Transportation Corps sought to assure a greater

correlation between stockage and demand. Existing provisioning procedures, which had been intended primarily for Air Force use, were replaced. Attempts were made, through CONARC and the CONUS army commanders, to achieve standardization of types and models of aircraft at installations, and, where possible, on an area-wide basis. Problems of requisition identification and processing were to be eliminated and improper requisitions reduced.

As a result of this program, the Transportation Corps made steady, if sometimes slow and erratic, progress in improving its supply system. While neither its overseas nor domestic supply performance had come up to the DCSLOG criteria by the end of 1958, definite improvement was evident. The Transportation Corps expected steady progress toward the objective of meeting Army standards of supply effectiveness as a result of continuing the existing program, together with benefits drawn from increased experience and expanded automatic data processing operations.[7]

During the transition period, many exceptions to Army regulations had to be requested and many regulations peculiar to aviation were published. These measures were due in part to assuming practices which had been common to the Air Force and could not be quickly changed, in part to the large number of technicians employed by the Transportation Supply and Maintenance Command who were former Air Force employees trained in the Air Force method of doing business. TSMC expended much effort in revising procedures and practices to conform to standard Army patterns, and, as time went on, fewer and fewer exceptions to Army regulations had to be requested. By early 1960, the only regulations which dealt exclusively with aviation equipment were based on the peculiarities of that equipment and not upon Air Force practices.

The transition period culminated in calendar year 1959. The attrition of Air Force stocks had taken place much more quickly than expected. Anxious to clear Army equities from its depots, the Air Force pressed for earlier transfer of stocks and offered to pay certain transportation costs. The Army also placed increased emphasis on expediting the transfer of disposal of its assets in Air Force depots. By 30 June 1958, almost $78 million worth of stock had been issued by or transferred from Air Force depots. Residual stocks, valued at about $1.6 million, were subsequently transferred or disposed of as rapidly as possible.[8]

During FY 1960, the Transportation Materiel Command was responsible for the supply and maintenance of 5,461 Army aircraft with a value of $427,000,000. The Master Authorized Stockage List (MASL) reflected the efficiency of supply stockage and supply distribution. During FY 1960, the list was expanded to embrace all items in the Transportation Corps supply system to be provided within a relatively short time, as contrasted with items supplied on an "as required" basis. The expansion of the MASL along with improved management techniques raised the number of requisition line items matching the MASL from 60 percent in FY 1959 to 80 percent in FY 1960. Slow procurement action, and the expansion itself, also kept a large percentage of items at a zero balance, which was improved after the close of the fiscal year. A 50 percent reduction in the number of critical air items to only 13 was encouraging even though it did not meet the target of zero. Measured by the Department of the Army DCSLOG criteria that at least 80 percent should be delivered on time, the Transportation Materiel Command met

the target for CONUS troop support, an improvement of 12 percent over 1959, though it still lagged for overseas troop support. These improvements in supply effectiveness could be ascribed to the perfecting of internal controls over the MASL and to the correction of errors in depot inventories.

Warehouse refusals at the beginning of FY 1960 were well above the target of 3 percent, causing the Transportation Materiel Command to attack the problem by examining the inventory of depot stocks, by purifying them, and by emphasis on correct identification and cataloging. The Transportation Corps sections of the four general depots were closed in turn between April and November 1959, and nearly 40,000 line items were adjusted by proper identification, classification, or correction of balances.

During the first half of FY 1960, procurement lagged because of a lack of funds, resulting in many priority item requests and a decline in the filling of requisitions. Additional funds for the last half of the year reversed these trends. Some 60,000 stock replacement items were procured during the year, a decrease of 25 percent from the previous year.[9]

Army Procurement of Aircraft

In September 1959, at the direction of the Office of the Secretary of Defense, the Chief of Transportation submitted a plan for direct engineering and procurement of Army aircraft to begin on 1 July 1961. During 1960, the Transportation Corps obtained 122 fixed wing aircraft and 304 helicopters through interservice procurement actions with the Air Force and the Navy. The Office of the Secretary of Defense did not believe that the Transportation Corps had the capability in engineering fields to undertake direct procurement of aircraft, therefore the Transportation Corps submitted a revised plan in January 1961 omitting this area. On 1 July 1960, the Office of the Secretary of Defense refused to permit full procurement of all aircraft, but indicated that a beginning could be made by the Transportation Corps in purchasing off-the-shelf items, including aircraft and components certified by the Federal Aviation Agency. The Transportation Corps could also prepare specifications, establish evaluation boards, conduct mock-up inspections, and participate with the other developing services in engineering and functional flight tests.[10]

Maintenance Personnel Problems

Maintenance was a major continuing problem of Army aviation. The maintenance of Army aircraft grew steadily more difficult and costly. Despite efforts at standardization and simplification, aircraft, particularly helicopters, increased in complexity as well as in size and number. Design deficiencies and modifications, short service life of components, the necessity for frequent tear down, inspection, and overhaul, and the wide dispersion of aircraft combined to complicate maintenance. Even the simplest aircraft required approximately ten hours of maintenance per hour of flight.[11]

On 4 May 1955, G-3, Department of the Army had requested the assistance of CONARC in the solution of certain problems concerning the adequacy of the enlisted grade structure of

helicopter mechanics in the transportation helicopter company and other TOE units that contained aircraft. At an Aviation Conference conducted at the Department of the Army on 29 April 1955, the adequacy of the rank of helicopter mechanics in the transportation helicopter company had been questioned, and the desirability of designing a specific position as crew chief so as to retain capable and competent maintenance personnel in the service was proposed.

A related problem was cited on 23 May in a letter from the Chief of Transportation to the Commanding General, CONARC, which stated that an evaluation of experience data clearly indicated the inadequacy of the method for computing aircraft mechanic requirements as established in SR 310-30-15, which contained organization and equipment authorization tables. The normal availability of helicopters assigned to transportation helicopter companies was 57 percent instead of the 66 and two-thirds percent planned for in the TOE. This availability objective was not being attained because of a lack of men to meet the high maintenance requirements. The Chief of Transportation recommended that the aircraft mechanic authorization contained in SR 310-30-15 be changed to increase the number of aircraft mechanics authorized in aviation units.

A CONARC study of the aircraft maintenance authorizations and the grade structure concluded that the number of mechanics authorized in existing TOEs was not adequate to perform required maintenance, and that the present grade structure for aircraft maintenance personnel should be raised one grade under the new specialist grade system. These measures would provide the incentive to encourage competent and highly trained mechanics to remain in the service.

On 3 June, CONARC recommended to the Department of the Army that the method of computing aircraft mechanics by SR 310-30-15 be changed. In order to raise the grades of aircraft maintenance personnel one grade, CONARC recommended that it would be necessary to change the standards of grade authorization contained in AR 611-201. CONARC proposed the following changes in titles for aircraft mechanics: aircraft mechanics helper be changed to airfield service crewman; senior helicopter mechanic be changed to helicopter crew chief (mechanic); and helicopter mechanic helper in field maintenance organizations be changed to aircraft maintenance apprentice. CONARC also recommended that the position of crew chief be authorized on the basis of one per aircraft.

CONARC representatives participated in a conference at the Department of the Army on 16 September concerning the requirements for additional mechanics for transportation helicopter companies. The G-3 representatives stated that they were in agreement with recommendations made by the Chief of Transportation and the Commanding General, CONARC, concerning a need for an increased number of mechanics in helicopter companies. It was indicated, however, that CONARC's proposed change to SR 310-30-15 would increase the number of fixed wing aircraft mechanics as well as rotary wing mechanics in various TOEs. The G-3 representatives felt that there was ample evidence presented to support an increase of rotary wing mechanics, but not to increase the number of fixed wing mechanics. Because there was an immediate requirement to increase the number of mechanics in TOE 55-75R, Transportation Helicopter

Company, this TOE should be revised accordingly and the Department of the Army would grant a waiver of the provisions for SR 310-30-15 for this revision. When sufficient factors were available for both fixed and rotary wing mechanic equivalents, a change would be published to SR 310-30-15. The conferees concluded that CONARC should publish a revision of TOE 55-75R, to include the increased number of mechanics required based on statistical data of operation experience to be furnished CONARC by the Chief of Transportation. The Department of the Army G-1 was instructed to furnish CONARC with an advance copy of the MOS and grade structure revision for aircraft mechanics to include in the revision of TOE 55-75R.

The Department of the Army on 23 September formally directed CONARC to make the revision. CONARC forwarded the revised TOE to the Department of the Army on 15 November for approval and publication. This revision increased the number of helicopter mechanics from 33 to 61 based on a maintenance workload of 7 hours of maintenance for each hour of flying time for H-21 light cargo helicopters and 4 hours of maintenance for each hour of flying time for H-13 reconnaissance helicopters. The position of crew chief on the basis of one per helicopter was also included in this revision. This action was considered an initial step in improving the Army Aircraft Maintenance Program. When all the actions recommended to the Department of the Army were completed, an increase in aircraft mechanics in forty-five TOEs would be required.[12]

Depot Maintenance Support

Fifth Echelon Maintenance

On 1 July 1955, the Transportation Supply and Maintenance Command assumed the depot level maintenance responsibility after making a preliminary survey of commercial facilities and negotiating initial contracts. While cross-service agreements were employed where feasible, the bulk of the fifth echelon work on Transportation Corps air items was performed by commercial contract.[13]

To accomplish the contractual maintenance of aircraft end items, the Transportation Corps established a new Standard Configuration and Modernization Program (SCAMP). While retaining the concept of scheduling aircraft through the depots on a three year cycle, as under Air Force programs, SCAMP was intended to avoid the difficulties which had been experienced earlier. SCAMP consisted of the inspection of aircraft, the performance of all maintenance work which had fallen due, the installation of product improvement and modification kits, and the restoration of aircraft to their scheduled level of depreciation. This program was expected to maximize maintenance effectiveness, correct deficiencies and discrepancies left unremedied at lower echelons, and simplify parts support. At the same time, reparable components were removed from aircraft and after restoration to serviceable condition were returned to depot stocks for reissue.

The Transportation Corps experienced great difficulty during FY 1958, the first complete year in which it had the depot maintenance responsibility, in assuring timely and efficient negotiation and execution of contracts for aircraft component overhaul and repair. Despite

difficulties, TSMC did make progress in the program. It was apparent, however, that the accomplishment left much to be desired. Contract awards lagged and long delays were experienced in getting aircraft through and out of maintenance facilities.

Steps were taken by the Transportation Corps to assure that the situation would be more orderly in FY 1959. Efforts were made to obtain the early release of funds and promptly to obtain bids and make awards of contracts. Indefinite quantity contracts were used to facilitate adjustments to changes in funds and workloads. Implementation of the FY 1959 depot maintenance program, however, was adversely affected by delays in obtaining Department of the Army approval of contracts and by shortages of contractor-furnished and government-furnished parts. New Department of the Army restrictions on the scope of the SCAMP program caused additional difficulties. With the establishment of fourth echelon maintenance at the depot sites, TSMC was directed to eliminate from SCAMP contracts any provision for performance of lower echelon maintenance tasks that should have been accomplished prior to delivery to the contractor. The Transportation Corps believed that it was both logical and economical to perform at the SCAMP site all aircraft repairs which had fallen due or would shortly become due. The deferral or omission of these repairs would probably lead to the grounding of aircraft on their return to using activities.[14]

Under cold war plans, mobilization capabilities and training facilities were essential for an instant readiness posture. Consequently, the Office of the Secretary of Defense on 22 December 1959 authorized Transportation Corps in-house assumption of about 40 percent of fifth echelon maintenance to be phased in over the next three years. The Transportation Materiel Command immediately established a Directorate of Maintenance Operations to move ahead on a two phased plan. The first phase consisted of inaugurating fifth echelon maintenance in general depots on components, excluding engines, transmissions, and aircraft themselves. The second phase—fifth echelon maintenance of engines, transmissions, and aircraft—required more extensive facilities than the Army had available. After careful analysis of available facilities of the Air Force and the Navy, the Naval Air Station at Corpus Christi, Texas, seemed to be the most promising.

Just as the Transportation Corps supply and maintenance sections in the general depots were getting ready for increased maintenance duties, the Quartermaster General on 2 September 1959 announced plans for a new concept which would eliminate the technical service sections. The technical service staff would be limited to staff guidance in the accomplishment of the depot's mission. This concept would remove the Transportation Corps staff officer from direct control over the aircraft supply and maintenance operations. The Chief of Transportation requested that Transportation Corps aircraft maintenance be set up in each of the general depots as a Class II activity. On 1 February 1960, the Department of the Army DCSLOG agreed to this proposal. The Quartermaster General desired to test this concept in one depot; the year's trial began at Sharpe General Depot in July 1960.[15]

Fourth Echelon Maintenance

The Army Aviation Depot Plan provided for shops as part of the Transportation Sections at the general depots to handle fourth echelon maintenance workloads beyond the capabilities of field maintenance activities. It was contemplated that the shops would have limited capabilities by 1 July 1958 and be fully operational by the end of the following year.

By late 1956, it had become evident that delays in the construction program for the shops, along with the lead time involved, would preclude completion of the aircraft maintenance facilities until at least mid-1958. The limited capability of the field maintenance shops, coupled with the delay in completing the new depot facilities, threatened to affect the maintenance support of Army aircraft. Because of the urgency of the situation, the Department of the Army DCSLOG directed the Chief of Transportation in December 1956 to establish a limited interim fourth echelon capability using available existing facilities at the depots.

The unanticipated acceleration in the scheduled buildup of fourth echelon capabilities at the depots caused difficulties. The CONUS army commanders were reluctant to submit estimates of work beyond the capabilities of their field maintenance shops, making it impossible to develop firm workloads for the depot shops. Considerable lead time was also necessary to secure the tools and equipment needed for the depot shops.

At the suggestion of the Transportation Corps, facilities construction at the depots was deferred for eighteen months or until such time as a definite idea of the amount of work that would be accomplished at the shops could be obtained. This decision made it impossible for the depots to absorb the load in excess of the capabilities of the field maintenance shops and caused CONARC to resort to expensive contractual maintenance.

As a result of this deteriorating situation, the DCSLOG, Department of the Army, in February 1958 ordered the facilities construction program reinstated. On 19 March, the Chief of Transportation was directed to assume responsibility for all fourth echelon maintenance support of Active Army, National Guard, and Army Reserve aircraft on 1 July 1958. With the exception of large contracts at Fort Rucker, Camp Wolters, and Camp Gary, which had large aircraft populations, the CONUS armies would be responsible for only third echelon maintenance.

The Transportation Corps took action to speed up the delivery of tools, shop equipment, and supplies to the depot sites. Plans were developed for the phased transfer of fourth echelon workloads from the CONUS armies to the depots, beginning on 1 July 1958, with the depots achieving a 100 percent capability by 1 January. Resources shortages continued and backlogs tended to grow. This, in turn, made it necessary to give priority to the repair of aircraft and components to be returned to users at the expense of reconditioning items for depot stock. Problems continued with the construction program.

The successful accomplishment of the CONUS field maintenance mission required a close correlation of the CONUS army and depot shop capabilities. The Transportation Corps, CONARC, and other interested agencies developed a coordinated plan for aircraft maintenance support in CONUS. Task groups were established to devise a program tailored to current peacetime conditions. The plan was expected to provide for efficient utilization of available

dollar, manpower, and facility resources, to assure the necessary back-up of overseas command with military personnel spaces and units; to determine the types, missions, strengths, and command control of required maintenance units; and to establish means for coordinating and budgeting and programing of funds for maintenance support.[16]

Maintenance Training

In May 1954, the Department of the Army considered the consolidation of all Army aviation maintenance instruction at the Transportation School. Both the Army Field Forces and the Army Aviation School voiced objections to the proposal. The Army Aviation Program approved in 1955 retained organizational aircraft maintenance instruction at the Army Aviation School and field and depot aircraft maintenance instruction at the Transportation School. In May 1959, the transfer of organizational maintenance instruction to the Transportation School again came under study. The Transportation School study to determine its capability to assume the additional workload concluded that it could be done provided programmed construction and limited improvements of existing facilities were completed. Once again, the proposed transfer was dropped from consideration. A year later, the Transportation School again studied the feasibility of consolidating aviation maintenance training at one installation. This study summarized savings in training time, instructor manpower capabilities, aircraft requirements, facility analysis and classroom requirements, shop space, and temporary and permanent construction at Fort Eustis and Fort Rucker. No changes resulted from this study. Finally, the Transportation School in 1962 once more studied the possibility of consolidation at the direction of CONARC. Again, no changes in maintenance training were made.[17]

The major maintenance courses taught at the Army Aviation School and the Transportation School from 1954 to 1962 are shown in tables 5 and 6.

Army Aviation School

The Department of Aviation Maintenance of the Army Aviation School, which began to move from Fort Sill to Camp Rucker on 20 November 1954, began the first instruction at the new site on 26 November. Two courses were conducted at this time: the Army Helicopter Maintenance Course (sixteen weeks) and the Twin-Engine Transition Maintenance Course (two weeks).

The actual move to Camp Rucker was conducted in phases and completed on 17 December. During the move, one class from each course was canceled and the first Helicopter Maintenance class, with twenty-four students, was scheduled for graduation on 8 January 1955. Due to the enthusiasm of the instructors and students, however, the class was accelerated and graduated before Christmas. Like all the other departments of the Army Aviation School, the Department of Aviation Maintenance at first suffered with inadequate facilities at Camp Rucker. An old vehicle shop building was used as a classroom. The Department of Academics was formed in September 1955 in an effort to consolidate general subjects and maintenance training. The new department was headed by the former director of the Department of Aviation Maintenance. In August 1957, the Department of Academics was discontinued and the Department of

Maintenance was formed. At this time, general subjects instructors were transferred to the Department of Fixed Wing Training.[18]

The Department of the Army in mid-April 1956 had reported to CONARC in its analysis of the program of instruction of airplane repair, reconnaissance helicopter repair, and tandem rotor helicopter repair courses that course content was consistent with the MOS and skill level for which each course trained and that course purpose statements conformed to established procedures. The department emphasized that course titles should, whenever possible, be expressed in terms of the subject matter taught. Course titles should be revised for the single rotor helicopter repair and for tandem rotor helicopter repair course to utility and cargo tandem rotor helicopter repair. The Department of the Army believed that prior experience in airplane repair activity was essential and should be included in the prerequisites for the courses.[19]

In mid-March 1956, CONARC approved the proposed program of instruction for the Aircraft Maintenance (Entry) Course and revised the course purpose to read: "to provide enlisted personnel with basic fundamentals required to enable them to participate in the operation of Army airfields and airstrips and in the servicing and maintenance of fixed wing and rotary wing aircraft." With the implementation of a new MOS system, certain aviation mechanics courses were added and others deleted. At Gary Air Force Base, the Army Helicopter Mechanic and the Army Airplane Mechanic courses were deleted and the Army Maintenance (Entry) Course was added. At the Army Aviation School, the Army Helicopter Maintenance, Twin Engine Transition Maintenance, Army Helicopter Maintenance (H-25), Army Helicopter Maintenance (H-19), Army Helicopter Maintenance (H-21), and Army Helicopter Maintenance (H-34) were deleted, and Airplane Maintenance, Reconnaissance Helicopter Maintenance, Utility and Cargo Single Rotary Wing Helicopter, and Utility and Cargo Tandem Rotor Helicopter courses were added. Implementation of training under the new courses and deletion of the old courses was effective on 1 July 1956.[20]

Third Army in June 1956 desired that schools be established to transition train automotive maintenance and other available personnel to aircraft maintenance crewmen (MOS 670) and to more specialized MOSs. The high number of aircraft in the Army area were causing increasing maintenance problems. It was recommended that those schools include a minimum of two hours per day of organized classroom instruction in addition to on-the-job training. Following a period of attendance at local transition schools combined with on-the-job training, individuals who demonstrated the necessary aptitudes and skills would be awarded with MOS. Local schooling would be continued following the awarding of the MOS until the mechanic reached a sufficiently high degree of skill for the awarding of MOSs 671, 672, 673, as appropriate. If advanced training could not be given at the station or unit level, quotas would be obtained from Third Army to send those men requiring such training to the Army Aviation School. Excess individuals who could not be absorbed into the locally established transition schools would be carefully screened and sent to the Army Aviation School to pursue a course for the award of MOS 670 followed by the specialized course in the type of aircraft assigned to their units.

Third Army reported on 6 August that aircraft maintenance transition schools were established at Third Army stations as a stop gap measure only because the replacement system was not providing enough trained aircraft mechanics to enable aviation units to maintain assigned aircraft. Third Army felt that aircraft maintenance was too complex a subject to be taught at station level only. It was intended that retained automotive mechanics eventually would attend formal training in aircraft maintenance. Third Army recommended that the input to aircraft maintenance schools be increased in order to provide sufficient fully qualified aircraft mechanics for assignment to aviation units.

In August 1956, the Fixed Wing Maintenance Course conducted at Camp Gary began moving to Fort Rucker. By January 1957, the move was completed with many of the civilian instructors from Camp Gary making the move to Fort Rucker. A labor dispute in November temporarily grounded the school's aircraft fleet. With the contract personnel on strike, students and instructors moved from the classrooms to the flight line and performed the necessary maintenance.

The Army Aviation School in May 1956 had suggested to CONARC that it would be feasible to establish an organizational aircraft maintenance officers course at the school and recommended that it be of fourteen weeks duration. The school also suggested that the course should have a minimum class of eight and a maximum class of sixteen dual rated officers, with a minimum annual input of 48. Based on two classes in residence, 5 additional primary instructors, 10 practical maintenance instructors, and 2 classrooms (1 conference type and 1 laboratory type) would be required. These additional resources would cost $86,200.

The Army Aviation School requested 120 days lead time for implementation of the course. The school also determined that there was a need for two additional courses—organizational aviation supply and technical inspector—for officer and enlisted students. These courses would each be 3 weeks in length, have a minimum class size of 8 students, and have a minimum course annual input of 128. Each course would require 3 additional instructors, 2 conference-type classrooms, and a lead time of 120 days.[21]

CONARC reported to the Department of the Army early in July that the establishment of the aircraft organizational maintenance officer course would have little or no effect on the existing aircraft maintenance officer course conducted at the Transportation School. Present input into that course came primarily from agencies engaged in field and depot, rather than organizational maintenance activities. Furthermore, the program of instruction for the existing course was slanted toward field and depot maintenance. Under the circumstances, CONARC would take necessary action to establish the aircraft organizational maintenance course at such time as the additional funds and instructor spaces were made available by the Department of the Army. The existing aircraft maintenance officer course would be continued at the Transportation School.

On 10 April 1957, CONARC gave interim approval to the program of instruction for the 10-week Organizational Maintenance Officer Course. Final approval came on 17 August. The purpose of the course was to provide officers with basic knowledge and fundamentals required to enable them to supervise and instruct the mechanics of aviation units in all forms, records, and

technical publications, and to provide officers with a thorough knowledge of aircraft maintenance, organizational (first and second echelon) through limited field maintenance (limited third echelon). Formal announcement of the course was made by CONARC on 5 September. The course length was subsequently reduced to five weeks in December 1957.[22]

On 10 April 1959, the Department of the Army approved a recommendation by CONARC to eliminate the Organizational Maintenance Officer course. Unit commanders could not spare the personnel, time, and funds, and—especially in small units—needed the potential students on the job, as trained in previous flight courses. Because everyone agreed that officer organizational maintenance training was essential to reduce overall maintenance costs and to increase the availability of aircraft for operational use, CONARC and the Army Aviation School studied a proposal to integrate more maintenance training in the initial flight training course.[23]

CONARC announced in May 1957 the prerequisites for the eight week Flight Simulator Operations and Maintenance Course, the purpose of which was to train enlisted men to operate and maintain those flight simulators needed to provide instruction in instrument flight techniques to rated Army aviators. These prerequisites included normal color perception, normal use of both hands, good hearing, twelve months or more of service remaining following the completion of the course, and a standard score of 100 or higher aptitude area GT.

CONARC informed the Army Aviation School in October that it was revising school loads for the third and fourth quarters of fiscal year 1958. The revision was based on budget cuts and revised MOS requirements, and would in some instances affect inputs into certain school courses. The Aircraft Maintenance Course was to continue to be offered until a revised schedule of classes reflecting new inputs was submitted to CONARC. The revised schedule was to be in conformance with the school's recommendation for a weekly flow of students.[24]

The introduction of new aircraft resulted in the development of new maintenance courses at the Army Aviation School. During July 1958, the Department of Maintenance organized a transition course for crew training on the H-37 MOJAVE. Because of the many complicated systems of the aircraft, the training was conducted for complete crews including the pilot, copilot, and crew chief. This course continued until February 1959, when it was replaced by the H-37 Helicopter Maintenance Course for mechanics only. With the introduction of the UH-1 IROQUOIS, a mechanics course for that aircraft was adopted on 1 April 1959. A year later, the first class of AO-1 MOHAWK mechanics met with twelve students. This was followed on 10 May 1960 with a new maintenance course of instruction for AC-1 CARIBOU mechanics. In July 1961, a course was organized by the Department of Maintenance to provide instruction on the automatic stabilization equipment which was installed on some H-34s and all H-37s. This course was discontinued in July 1962, and the instruction integrated into the regular maintenance course for H-37 mechanics.

In April 1960, the Department of Maintenance organized the first U.S. Army Aviation School Organization Aircraft Maintenance Supervisors Mobile Instruction Team whose mission was assistance for unit commanders in training maintenance personnel on station. The three teams

organized from military instructors within the Department of Maintenance presented forty hours of instruction at major installations throughout the CONUS army areas.[25]

Transportation School

The major emphasis in resident instruction at the Transportation School shifted in 1954 to the aviation maintenance training program. Rail and marine subjects made up over 60 percent of the courses given by the school in 1954, while aviation maintenance courses accounted for almost 60 percent of the courses in 1958. The first aviation maintenance course began in late June 1954 with the opening of six classes. An additional course began that July.

Late in 1955, the Defense Department studied the feasibility of having all nontactical Army aviation training, including aviation maintenance, conducted by the Air Force. The Department of the Army strongly recommended that the Army be given responsibility for all Army aviation training, and the proposed change was not made.

Attrition rates were a matter of concern in both the advanced and specialist aviation maintenance courses. In order to improve the qualifications of enlisted men attending the advanced maintenance courses, the Transportation School recommended that the Department of the Army School Catalog be revised to provide for formal examination by the Aviation Department. If found deficient, a man would then be required to attend MOS 680 entry training or be returned to his unit. CONARC concurred in this recommendation.

When the Transportation School began instruction in aviation maintenance, certain items of equipment were still in critically short supply. These included special tools required for assembly and disassembly of aircraft components, major items of shop equipment, and L-20 and L-23 aircraft. Due to nonreceipt of major items of shop test equipment, the first class of the Aircraft Instrument and Electrical System Repairman Course (MOS 3559) was sent to the Norfolk Naval Air Station for two weeks, and the second class was rescheduled. The lack of these special tools and major items of equipment continued as a major problem for the next two years. With respect to aircraft components and special tools, the aviation supply process, linked with provisioning, procurement, production, storage, and priority field distribution, imposed unreliable delivery dates ranging from one to twenty-four months. The shortage of aircraft also continued to be a limiting factor on maintenance training for the next several years.[26]

In November 1956, CONARC approved a draft program of instruction for the Aircraft Maintenance Officer Course. The revised program of instruction increased the course length from fourteen to fifteen weeks. The increase in the course length was necessary to provide greater emphasis on supply production control, management, and other subjects which had increased in importance with the assumption of Army aviation depot maintenance.

On 7 January 1957, CONARC formally announced the prerequisites for the revised Aircraft Maintenance Officer Course which would train officers to coordinate and supervise field, depot, and organizational maintenance, including technical maintenance inspection of Army aircraft. The officer could be Regular Army or Reserve Component whose assignment, actual or

anticipated, was to a position involving direction of organizational or higher level aircraft maintenance activity or to a staff position.[27]

In early 1956, CONARC requested the Chief of Transportation to comment on the feasibility of establishing a Special Aircraft Officer Maintenance Course. Acting on the request of the Chief of Transportation, the Transportation Training Command announced that a special course of instruction for National Guard officers had been established at the Transportation School. The two week course would emphasize procedures, forms, and records of aircraft maintenance and would be based on programs of instruction then being utilized in the Aviation Officers Maintenance Course. Items common to both organizational field maintenance would be stressed, with inspection methods predominant. The Transportation Training Command recommended that the starting date be 14 May 1956, with a reporting date at Fort Eustis of 10 May.

The National Guard Bureau in January 1957 requested the establishment of the special aviation officer maintenance course, estimating that sixty officers would be available to attend such a course, provided it would be conducted in May. CONARC approved the course in March 1957, provided that training could be conducted within school facilities. Since the training would be on a one-time basis, submission of a program of instruction was not required. The Transportation Center at Fort Eustis proposed a starting date of 13 May with the closing that being 18 May. The anticipated attendance was forty-five students.[28]

In the summer of 1959, the Aviation Department of the Transportation School provided six instructors for aviation maintenance support training of U.S. Army Reserve and National Guard units at Camp Drum, New York, for nineteen days, and two instructors of National Guard units at Fort Ripley, Minnesota. This experiment evolved into the Mobile Aviation Maintenance Training Teams, as directed by the Office of the Chief of Transportation, which officially became part of the school's mission in December 1959. The program was enlarged in 1961 when two teams of eleven men each were sent out by the school. When the 1962 teams were organized, the Aviation Maintenance Training Branch had 222 military instructors authorized, but only 92 assigned. Because of this, it was decided to cut each team to six men. The Transportation School felt that units did not take full advantage of the instruction available because of field training and support requirements.

The Army Aircraft Maintenance Management Course had been given three times in 1959-1960. In 1960, in order to comply with a change to AR 600-201, this course was dropped and replaced by three separate courses designed to train qualified personnel in accordance with the new MOS structure. The new courses were Fixed Wing Technical Inspector (679.4), Rotary Wing Technical Inspector (679.5), and Aircraft Maintenance Supervisor (679.6). Because previously aviation maintenance personnel had been trained either in fixed wing or rotary wing aircraft and the new 679.6 MOS required the supervisor to be qualified in both, the Transportation School had to train its own instructors in order to qualify them for the MOS conversion. To do this, the school set up a training course for its instructors which followed closely the 679.6 supervisor course.

In FY 1960, the emphasis on MOS enlisted training at the Transportation School shifted further toward aviation as all rail courses were stopped and several marine courses were canceled. In 1958, 55 percent of the enlisted training courses had been in aviation maintenance; by the end of 1962, this figure had risen to slightly over 80 percent. The increases in the aviation courses were primarily in MOS 673.2, Single Rotor Helicopter Repair, and MOS 685.1, Aircraft Electrical Repair. While the actual input of students into the aviation maintenance courses in FY 1960 represented only a 15 percent increase over FY 1959, these courses required a lower instructor-student ratio and more intricate and expensive equipment. In FY 1959, FY 1961, and FY 1962, the input into the aviation courses at the Transportation School averaged about 1,225; in FY 1960 it reached 1,425.[29]

Endnotes
Chapter XIV

1. (1) Detailed Information to Support Report on Army Aircraft Maintenance and Supply Presented to the Assistant Secretary of the Army, 20 Dec 57, pp. 1-2. (2) *The Army Aviation Depot System: Its Origins and Development*, pp. 1-3.

2. (1) Report on Army Aircraft Maintenance and Supply, Sec. I, App. I, pp. 5-8. (2) *The Army Aviation Depot System: Its Origins and Development*, pp. 8-9.

3. (1) Report on Aircraft Maintenance and Supply, p. 3. (2) *The Army Aviation Depot System: Its Origins and Development*, p. 9.

4. (1) Revised Army Aviation Depot Plan, 15 Jan 56, TSMC. (2) *The Army Aviation Depot System: Its Origins and Development*, pp. 10-11.

5. CONARC Summary of Major Events and Problems, FY 57, Vol. V, G-4 Sec, Jul-Dec 56, pp. 5-6.

6. (1) *The Army Aviation Depot System: Its Origins and Development*, pp. 16-23. (2) Report on Army Aircraft Maintenance and Supply, pp. 12-13. (3) By 1960, there were about 6,000 aircraft in the Army inventory.

7. *The Army Aviation Depot System: Its Origins and Development*, pp. 23-25, 28-30.

8. (1) Army Aircraft Repair Parts Management Report-1959, TMC, 5 Feb 60, p. 6. (2) *The Army Aviation Depot System: Its Origins and Development*, p. 19.

9. OCofT Summary of Major Events and Problems, FY 60, pp. 58, 61-114.

10. Ibid., FY 60, p. 64.

11. (1) Bykofsky, *The Support of Army Aviation 1950-1954*, pp. 71-72. (2) Tolson, *Airmobility 1961-1971*, p. 88.

12. CONARC Summary of Major Events and Problems, FY 56, Vol. II, G-3 Sec Org & Equip Div, Jul-Dec 55, Item 9; and FY 58, Vol. II, Army Avn Sec, Jul-Dec 57, pp. 6-7.

13. There were five Army maintenance categories. First echelon was maintenance performed by the user or operator of the equipment. Second echelon was performed by specially trained personnel in the using organization and was beyond the capabilities and facilities of the first echelon. Third echelon was performed by specially trained units in direct support of the using organization. The first two echelons were performed in the using units, while the third echelon was performed by attached aviation maintenance units. Fourth echelon was performed by units organized as semifixed or permanent shops to serve lower echelon maintenance usually for return to supply channels. Fifth echelon involved the rebuilding of major items, assemblies, parts, accessories, tools, and test equipment.

14. (1) *The Army Aviation Depot System: Its Origins and Development*, pp. 32-37. (2) Report on Army Aircraft Maintenance and Supply, pp. 51-55.

15. OCofT, Summary of Major Events and Problems, FY 60, pp. 66-68.

16. (1) *The Army Aviation Depot System: Its Origins and Development*, pp. 37-43. (2) DF LOG B/3, DA DCSLOG to CofT and QMG, 7 Mar 58, subj: Fourth Echelon Maintenance of CONUS Army Aircraft. (3) Ltr AGAM-P (M) 400.402 (7 Mar 58) DCSLOG DA, DA TAG to distr, 19 Mar 58, subj: Fourth Echelon Maintenance of Army Aircraft in the Continental United States.

17. (1) Weinert, Army Aviation, p. 131. (2) *History of the United States Army Transportation School, 1942-1962*, USA Trans Sch, Oct 67, pp. 253, 256.

18. *History of the US Army Aviation Center and Army Aviation School*, p. 14.

19. Ltr AGTP-M 352.11, DA to CONARC, 20 Apr 56, subj: Proposed Program of Instruction for Aircraft Repair Courses.

20. (1) Ltr ATTNG-TNG-352.11, CONARC to Army Aviation School, 19 Mar 56, subj: Program of Instruction for Aircraft Maintenance Entry Course MOS 670. (2) Ltr ATTNG-TNG-352 (Army Aviation School), CONARC to Army Aviation School, 30 Mar 56, Army Aviation Maintenance Course under New MOS System.

21. Ltr AASDI 352.11, Gen Army Avn School to CONARC, 10 May 56, subj: Organizational Aircraft Maintenance Officer's Course.

22. Ltr ATTNG-TNG-352/54 (Army Avn Sch) (5 Sep 57), CONARC to distr, 5 Sep 57, subj: Announcement of the Organizational Maintenance Officer Course (1A-F-13).

23. CONARC Summary of Major Events and Problems, FY 59, Vol. III, Army Avn Sec, Jan-Jun 59, pp. 11-12.

24. (1) Ltr ATTNG-TNG-352/16 (Army Avn Sch) (2 May 57), CONARC to distr, 2 May 57, subj: Announcement of the Flight Simulator Operations and Maintenance Course. (2) Ltr AASDI 352.11 AMC, Army Avn Sch to CONARC, 25 Sep 57, subj: Revised Schedule for Aircraft Mechanic Course, w/1st Ind, CONARC to Army Avn Sch, 10 Oct 57.

25. *History of the US Army Aviation Center and Army Aviation School,* pp. 14-15.

26. *History of the United States Army Transportation School, 1942-1962,* pp. 202-203, 217-218, 235-236.

27. (1) Ltr TCTTC-TS-DOI-3, Trans Sch to Trans Tng Cmd, 21 Aug 56, subj: Program of Instr for Aircraft Maint Officer Course (55-0-16) MOS 4823, w/3 Ind. (2) Ltr ATTNG-TNG 352/1 (TC Sch) (7 Jan 57), CONARC to distr, 7 Jan 57, subj: Announcement of the Aircraft Maintenance Officer Course.

28. (1) Ltr NG AROTS, National Guard Bur to CONARC, 23 Mar 56, subj: Special Aircraft Officer Maintenance Course, w/5 Ind. (2) Ltr TCTTC-G3-AIR 360, Trans Tng Comd to CofT, 26 Apr 56, subj: Special Aircraft Officer Maintenance Course, w/1 incl.

29. *History of the United States Army Transportation School, 1942-1962,* pp. 253, 256, 264, 267, 281.